

I ON TECHNOLOGY

Battle lines are drawn in war of video formats

Chicago—Videocassette recorders are installed in nearly 40 percent of U.S. households, and the Electronic Industries Association is predicting that consumers will buy another 13 million VCRs per year for the foreseeable future. Sounds like a stable product category, doesn't it?

Guess again. It is still uncertain which videocassette technology those VCRs will use. The initial skirmish—between the lower-priced VHS format and the higher-quality Beta format—has pretty much ended, with VHS as the clear victor. But now VHS must face a serious challenge from the younger and more advanced 8-mm technology.

A large software library is available in the VHS format, so it will be some time before 8 mm can offer consumers the same software selection, though 8-mm manufacturers have established the 8MM Video Council, a nonprofit New York-based trade organization, to speed acceptance of the format. Where 8 mm has an advantage is in the home movie application—a rapidly growing use for videotape. (Only 517,000 camcorders were purchased in 1985, but the EIA is predicting sales of 1 million for 1986 and 1.5 million for 1987.) The 8-mm format uses smaller tapes than the 1/2-inch VHS format, so 8-mm camcorders can be made smaller and lighter than standard VHS models—more appealing for consumers interested in photographing a trip to the beach

or a family vacation.

So 8 mm's weapon, for now, is the camcorder. At the 1986 Summer Consumer Electronics Show held here June 1-4, Sony led its Video-8 product line with its Handycam camcorders, priced from \$1250 to \$1795. Other 8-mm manufacturers, including camera manufacturers like Olympus and Canon, also featured the camcorders in their CES displays.

Camcorders were also demonstrated in the CES exhibits of VHS manufacturers—many of whom, including Matsushita, Goldstar, Hitachi, Mitsubishi, and Zenith, are moving to the higher-quality VHS-C subformat (which is compatible with standard VHS software). However, only JVC's VHS camcorder can compete seriously with Sony's 8-mm Handycam in size, weight, and ease of use.

The JVC VideoMovie, at 2.9 pounds and \$1495, gets around the size disadvantage of the VHS format by using special 1-hour compact recording cassettes that slip into an adapter for playback on any standard VHS player. It offers a CCD pickup for image sensing, one-button autofocus, and a zoom feature, and incorporates a 500-line-resolution CRT for monitoring and playback.

Sidestepping the question of which format to support—and raising a different set of questions—the Korean company Samsung demon-

strated the Translator, a VCR with two recording decks, one accepting 8-mm tape, the other accepting VHS tape. The company envisions consumers making home movies of their children with 8-mm camcorders and using the Samsung dual deck to make VHS-format copies of those movies to send to doting grandparents.

The Motion Picture Association of America, however, which has told Samsung that it will issue a complaint when the product is officially launched in the U.S., sees a less innocent use for the dual-deck videotape recorder—copyright law violation. The MPAA, fearing that consumers will rent VHS-format movies and copy them onto 8-mm videotapes to build a home library, wants to stop the introduction of this product.

A Samsung representative told THE INSTITUTE that positive retailer reaction to its prototype at CES has encouraged the company to market the dual deck in the United States as soon as it can get its manufacturing lines prepared, sometime after the beginning of 1987. The company expects to retail the product for under \$1000.

Also at the Summer CES, Compuconics Video of Denver, Colo., demonstrated an entirely different method of videorecording—using floppy disks. The company said the prototype was meant to demonstrate its data reduction technology and is nowhere near being a consumer product. While the company currently can store only 5 minutes of video on a standard floppy disk, it envisions packing up to 7 hours of video on a CD-ROM.

—Tekla Perry

Digital audiotapes are still waiting in the wings

Chicago—The mostly invisible audio stars of the Consumer Electronics Show held here in early June were digital audiotape recorders. Prototypes were not exhibited formally, as had been anticipated, but were shown privately in hotel suites. This continued a trend begun at the Winter Consumer Electronics Show in Las Vegas last January, where at least one prototype was exhibited privately.

The introduction of digital audiotape technology has apparently been delayed to prevent consumer confusion that might affect the

of environment they are in, such as a sound's timing, direction, and volume. The cues were then broken down into early reflections in the 10-100 meters per second area and subsequent reverberation. Early reflections, according to Yamaha engineers, give directionality, timbre, and clarity to the sound while defining the room in which the sound is produced. Subsequent reverberation tends to lower the definition and clarity of the sound.

The data from the sound-field analyses of various environments are stored in the processor's



How many different entertainment technologies can be packed into a "boom box," that hand- (or shoulder-) carried music blaster ubiquitous on city streets? Manufacturers at the Summer Consumer Electronics Show held June 1-4 in Chicago appear to be competing to find out. Boom boxes containing twin cassette decks along with AM/FM radios were commonplace; Panasonic, Toshiba, Sony, Sharp, Magnavox, and others added compact disk players to some boom-box models; and Citizen and Casio demonstrated boom boxes incorporating LCD televisions.

now-booming CD business.

Digital audiotape systems (cassettes) have the advantage over digital compact disks of providing recording capability and longer recording time (up to 4 hours). There are two principal, and incompatible, competing formats. One is stationary-head digital audiotape; the other is rotary-head digital audiotape.

CD players for homes and cars continued to dominate the audio exhibits but offered no real breakthroughs. And Yamaha Electronics Corp. made its bid to do surround-sound one better by demonstrating a digital sound-field processor said to be able to create 48 distinct acoustic environments that can be varied to suit the tastes of home listeners.

Yamaha's DSP-1 digital sound-field processor uses digitally stored sound fields of various highly regarded concert halls and other environments. The user can select from 48 of these environments at will. Even though some of the most famous concert halls in the world are "reproduced" by the system, Yamaha is prevented legally from naming them lest it appear that the concert halls are endorsing the system.

Yamaha engineers took complex sound measurements of audio cues that subtly alert listeners to the type

read-only memory. To reproduce these reflections in real time, a new VLSI circuit was developed that can take the stored reflection information and reproduce it in terms of timing, level, and source direction of sound for each of up to 88 early reflections (22 for each of four loudspeakers). Three of the new chips are needed to properly recreate the 48 musical environments preset in the processor. A listener need not play a recording with its natural sound environment. For example, jazz recordings can be played back with an intimate club environment or with a large auditorium environment.

To recreate a complete sound field, two additional channels of amplification and two additional loudspeakers are needed for the rear of the listening room. For maximum effect, Yamaha engineers say, the rear channels should be augmented with an additional two channels in the front to create a full, panoramic six-channel system.

The DSP-1 Digital Sound Field Processor also includes six-channel Dolby Surround. The suggested retail price is \$849. The M-35 power amplifier, designed for use with the processor, provides switchable 2/4-channel operation. Its suggested retail price is \$249.

—Ronald K. Jurgen

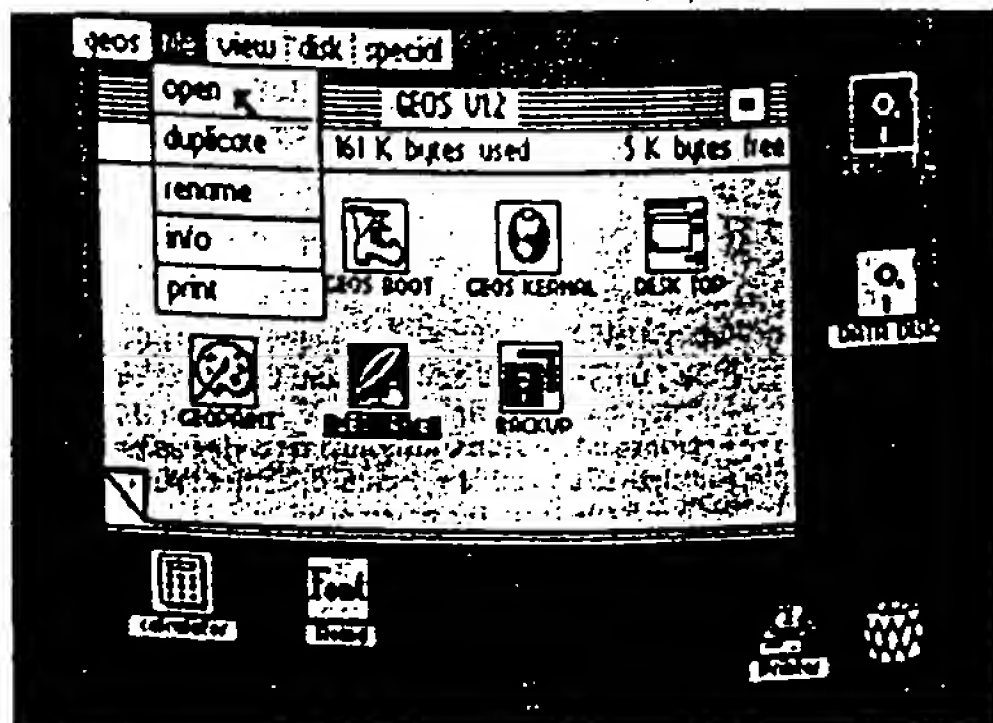
Manufacturers of computers, video games put some old technologies into new packages

Chicago—Though the home computer market has proved elusive in the past few years, driving many companies to promote sophisticated electronic typewriters instead, Atari Corp. and Commodore Business Machines Inc. are still trying to capture that market. At the 1986 Summer Consumer Electronics Show held here June 1-4, Atari filled much of its spacious booth with demonstrations by independent software developers of products for the Atari 520 ST computer. The ST, which is based on a 68000 microprocessor, uses Digital Research Inc.'s GEM operating system, which has Apple Macintosh-like windows but is not compatible with Macintosh software. The 520 ST retails for \$399.95.

Commodore, tucked away in a stark demonstration room out of the main exhibit area, did not display its sophisticated 68000-based Amiga computer. Instead, the company repackaged its 6502-based Commodore 64, labeling it the 64C. Priced at under \$250, the 64C is fully compatible with the 6 million Commodore 64s already sold and therefore can access a wide variety of software. The 64C will include a mouse and a new operating system called GEOS, a paint program, a word processor, and a number of desk accessories. GEOS has the look—though again, not the compatibility—of a color Macintosh.

GEOS [see photo] was developed by Berkeley Softworks of Berkeley, Calif., and will retail separately for \$59.95, allowing current Commodore 64 owners to upgrade their systems cheaply.

Atari did some repackaging of its



The Commodore 64 computer has been given a new look—the look of an Apple Macintosh—by the GEOS operating system, designed by Berkeley Softworks of Berkeley, Calif.

own, offering the Atari 7800 game system with Atari 2600 compatibility for \$80 and a downsized 2600 for \$50. The Atari 2600, introduced in 1977, has a huge software library. Atari is continuing to develop new software in this format, priced at under \$10 a unit. Atari said that its game systems are selling well. Speaking at the CES Issues and Answers Conference on Personal Computers and Home Office Products held as part of the electronics show, Sam Tramiel, president of Atari Computers, noted that his father, Jack, had no idea video games would continue to sell when he purchased the firm from Warner Communications.

Atari isn't the only company that sees a future in video games. Nin-

tendo of America Inc. and Sega of America Inc., both subsidiaries of Japanese companies, introduced dedicated video game systems, which use custom chips to generate high-quality graphics and incorporate chips that prevent unauthorized competitors from producing software for the machines. The Nintendo system retails for \$179.95 and includes a light gun and robot in addition to the control deck, handheld controllers, and two games; the price is \$99.95 for just the control deck, controllers, and one game. The Sega system, which retails for \$150, includes a control console, two control pads, a light gun, and two games. Software for the systems, which are incompatible, will sell for \$20 to \$30.

Giving computers a hand

Chicago—VPL Research Inc. of Palo Alto, Calif., demonstrated what was perhaps the most unusual product of the 1986 Summer Conference Electronics Show held here June 1-4.

The Z-Glove, a \$39.95 peripheral for the Commodore 64 computer that works with a newly developed language called Grasp, looks like a regular glove but includes sonar and bend sensors that allow the computer to locate the user's hand in three-dimensional space, determine its tilt, and follow any finger movements.

VPL demonstrated the Z-Glove with a paint program that changed brush type with changes in finger position, and a music program that changed pitch, instruments, and volume as the user "conducted" an invisible orchestra while wearing the glove.

Z-Glove will be marketed by Sharedata of Eden Prairie, Minn.

EXHIBIT

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